1. Record Nr. UNINA9910373900403321

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Titolo	Linear and Nonlinear Circuits: Basic and Advanced Concepts : Volume 2 / / by Mauro Parodi, Marco Storace
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-030-35044-4
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (XV, 515 p. 455 illus., 31 illus. in color.)
Collana	Lecture Notes in Electrical Engineering, , 1876-1100 ; ; 620
Disciplina	621.3815 621.3192
Soggetti	Electronic circuits Signal processing Image processing Speech processing systems Biophysics Biological physics Circuits and Systems Signal, Image and Speech Processing Biological and Medical Physics, Biophysics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes Index.
Nota di contenuto	Basic concepts: two-terminal linear elements with memory and rst-order linear circuits -- Advanced concepts: rst-order nonlinear circuits -- Basic concepts: linear two-ports with memory and higher-order linear circuits -- Advanced concepts: Higher-order nonlinear circuits – State equations and equilibrium points -- Basic concepts: Analysis of LTI circuits in sinusoidal steady state -- Advanced concepts: Analysis of nonlinear oscillators.
Sommario/riassunto	This book provides readers with the necessary background information and advanced concepts in the field of circuits, at the crossroads between physics, mathematics and system theory. It covers various engineering subfields, such as electrical devices and circuits, and their electronic counterparts. Based on the idea that a modern university course should provide students with conceptual tools to understand the

behavior of both linear and nonlinear circuits, to approach current problems posed by new, cutting-edge devices and to address future developments and challenges, the book places equal emphasis on linear and nonlinear, twoterminal and multiterminal, as well as active and passive circuit components. This second volume focuses on dynamical circuits, which are characterized by time evolution and by the concept of state. The content is divided into a set of introductory and a set of advancedlevel topics, mirroring the approach used in the previously published volume. Whenever possible, circuits are compared to physical systems of different natures (e.g. mechanical or biological) that exhibit the same dynamical behavior. The book also features a wealth of examples and numerous solved problems. Further topics, such as a more general framing of linear and nonlinear components, will be discussed in volume 3.